REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1, 3-4, 7-25, 29, and 31-33 are currently pending in this application. Claims 6 and 30 have been cancelled. No new matter has been added by way of the present amendment. For instance, the amendment to claim 1, as well as new claim 33, are supported by previously presented claims 4, 6 and 30. Accordingly, no new matter has been added.

In view of the amendments and remarks herein, Applicants respectfully request that the Examiner withdraw all outstanding rejections and allow the currently pending claims.

Issues Under 35 U.S.C. § 102(b)

Claims 1, 13, 14 and 29 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Bernier et al. (U.S. 5,834,571) (hereinafter Bernier '571). Applicants respectfully traverse.

The Examiner asserts that Bernier '571 discloses a method of producing a polymer in a continuously operated gas phase reactor, polymerizing at least one monomer in a bed containing an active catalyst and adjusting a discharge rate to withdraw a polymer product from the reactor. The Examiner further asserts that Bernier '571 inherently teaches a step of "separately recovering particle agglomerates from the reactor".

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of anticipation. For anticipation under 35 U.S.C.§102, the reference must teach each and every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. The fact that a certain result or characteristic may occur or be

present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993).

The present invention is directed, *inter alia*, to a method of producing a polymer in a continuously operated gas phase reactor, comprising the steps of polymerizing at least one monomer in a bed containing an active catalyst, continuously withdrawing polymer powder from the reactor, adjusting a discharge rate of the polymer powder so as to maintain a constant bed level during polymerization and separately recovering particle agglomerates from the reactor by discontinuously withdrawing the particle agglomerates, wherein the discharge rate of the polymer powder is adjusted by using a continuously operated control valve, and the operation of the control valve is adjusted by using a control signal obtained from a bed level controller, and wherein the control valve is adjusted to provide for pulsating operation to prevent clogging of the valve. In a preferred embodiment, the ratio between the polymer powder continuously discharged from the reactor and the polymer particle agglomerates discontinuously withdrawn is in the range of 1:1 to 10,000:1, and the polymer powder is degassed after it is withdrawn from the reactor (*see*, for example, claim 32). In another embodiment, the polymer powder is withdrawn via an outlet nozzle connected to the control valve, and said nozzle is provided with a grid flush mounted at the reactor wall to prevent lumps from entering the pipe (*see*, for example, claim 33).

The present inventors have discovered that the **continuous withdrawal of powder combined with separate withdrawal of agglomerates** (emphasis added) results in unexpectedly superior operation stability over an extended period of time, as well as increased

capacity and simple processing. Bernier '571 fails to explicitly or implicitly disclose a process as presently claimed.

Bernier '571 discloses a gas phase polymerization process wherein a stream of monomer and gas is introduced into a polymerization zone and at least one liquid component is provided. Bernier '571 does not explicitly or implicitly disclose a method of producing a polymer in a continuously operated gas phase reactor, by continuously withdrawing polymer powder from the reactor and discontinuously withdrawing particle agglomerates.

At column 39, lines 40-41, Bernier '571 discloses "continuously or intermittently withdrawing polymer product from said polymerization zone". This statement is the only reference to continuous withdrawal made by Bernier '571. Other disclosures in the document are related solely to intermittent withdrawal. As nothing else is disclosed, it is reasonable to conclude that the person skilled in the art, faced with these teachings and attempting to continuously withdraw the polymer of Bernier '571, would simply use a continuous valve to withdraw said polymer. However, as evidenced by the disclosed Declaration, this procedure would lead to plugging of the outlet due to polymer agglomerates.

Thus, continuous withdrawal of the polymer of Bernier '571 would lead to plugging. On the other hand, intermittent withdrawal of the polymer of Bernier '571 would result in very limited capacity and instability, as evidenced by Applicants' Example and Comparative Example at pages 11-12 of the present Specification. The Comparative Example on page 11 of the Specification represents the prior art process disclosed by Bernier '571. As evidenced by the results discussed in the Specification, the present method exhibits unexpected advantages over the method of Bernier '571.

The Examiner argues that Bernier '571 discloses that a minor part of the polymer may leave the bed continuously with the fluidization gas. However, part of this polymer settles back into the bed when the velocity of the gas is reduced in the velocity reduction zone (see the Figure of Bernier-reference number 14) or is returned to the bottom of the reactor together with the fluidization gas (see Figure-reference number 26; see also col. 17, lines 18-24 and lines 37-40). After passing the fluidization grid (28), the continuously withdrawn polymer returns into the fluidized bed. Thus, even though in Bernier '571 the polymer particles may accidentally be entrained with the fluidization gas, they are **not completely withdrawn from the reactor system but are in fact returned into the fluidized bed with the fluidization gas** (emphasis added). Applicants note that Bernier '571 teaches that the "the recycle line and the elements therein should be smooth surfaced and devoid of unnecessary obstructions" (see col. 20, lines 6 to 10).

Present claim 1 requires that the outlet pipe contains a continuously operating control valve adjusted to provide pulsating operation, so as to prevent clogging of the valve. Such a valve is not disclosed or suggested by Bernier '571. As the Examiner indicated, the continuous withdrawal in Bernier '571 takes place in the fluidization gas stream. The fluidization gas recycle line includes only a compressor and a heat exchanger (see Figure; see also, col. 20, line 8). Moreover, Bernier '571 fails to teach or suggest pulsating operation of the valve.

New claims 33 requires that the outlet pipe contains a continuously operating control valve and a grid flush mounted at the reactor wall to prevent lumps from entering the pipe. As previously discussed, such a valve is not disclosed or suggested by Bernier '571. As the Examiner indicated, the continuous withdrawal in Bernier '571 takes place in the fluidization gas

stream, and the fluidization gas recycle line includes only a compressor and a heat exchanger (see Figure; col. 20, line 8). Furthermore, the pipe line for withdrawing the fluidization gas stream from the reactor in Bernier '571 does not include a grid flush mounted to the reactor wall to prevent the lumps from entering the pipe.

Clearly, Bernier '571 fails to explicitly or implicitly teach each and every aspect of the claimed invention, and thus fails to anticipate the same.

Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Issues Under 35 U.S.C. § 103(a)

Claims 1, 3, 4, 6-25, and 29-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bernier '571 view of de Lorenzo et al. (U.S. 4,535,134) (hereinafter de Lorenzo '134). Applicants respectfully traverse.

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Additionally, there must be a reason why one of ordinary skill in the art would modify the reference or combine reference teachings to obtain the invention. A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). There must be a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* The Supreme Court of the United States has recently held that the

"teaching, suggestion, motivation test" is a valid test for obviousness, albeit one which cannot be too rigidly applied. *Id.* Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *Id.*

As previously discussed, Bernier '571 fails to teach a method of producing a polymer in a continuously operated gas phase reactor, comprising the steps of polymerizing at least one monomer in a bed containing an active catalyst, continuously withdrawing polymer powder from the reactor, adjusting a discharge rate of the polymer powder so as to maintain a constant bed level during polymerization and separately recovering particle agglomerates from the reactor by discontinuously withdrawing the particle agglomerates, wherein the discharge rate of the polymer powder is adjusted by using a continuously operated control valve, and the operation of the control valve is adjusted by using a control signal obtained from a bed level controller, and wherein the control valve is adjusted to provide for pulsating operation to prevent clogging of the valve. The de Lorenzo reference fails to cure these deficiencies.

The reference to de Lorenzo teaches a method and apparatus for controlling the discharge of product from vapor phase polymerization of monomers in a horizontal stirred-bed reactor. The teachings of de Lorenzo '134 fail to address the deficiencies of Bernier '571 in disclosing or suggesting the combination of **continuous withdrawal of polymer powder and separate withdrawal of the agglomerates** (emphasis added), as presently claimed.

Evidently, the cited references, alone or in combination, fail to teach or suggest every limitation of the instant invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and objections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Andrew D. Meikle, Reg. No. 32,868 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: FEB 28 2008

Respectfully submitted,

By _____
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Enclosure: Declaration Under 37 CFR 1.132

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IN THE U.S. PATENT AND TRADEMARK OFFICE

APPLICANT:	Kivelä, Jouni et al.	CONF:	5717
SERIAL NO.:	09/83,600	GROUP:	1713
FILED:	May 11, 2001	EXAMINER:	Cheung, W.K.

FOR: METHOD AND APPARATUS FOR DISCHARGING POLYMERIZATION REACTORS

DECLARATION SUBMITTED UNDER 37 C.F.R. § 1.132

Honorable Commissioner
Of Patents and Trademarks
Washington, D.C. 20231

November 13, 2007

6, 2003

Sir:

I, Mr. Klaus Nyfors of Borealis Polymers Oy, Finland, do hereby declare the following:

I am a technical specialist in the field of design and engineering of olefin polymerization processes and have supervised the experiments described below.

As one of the inventors I am familiar with the above referenced patent application.

I have read and understand the subject matter of the Office Action of October 2, 2006.

The following comments are offered in support of the patentability of the instant invention.

A polymerization process otherwise similar to the one described in the Example of the pending Patent Application, except that it contained two continuously operating polymer outlets at a level of about 7 meters from the fluidization grid. The discontinuous outlet was located at the level of the fluidization grid.

A polymerization was conducted as described in the Example of the pending Patent Application, except that the discontinuous outlet was not used and the one of the continuous outlets was used while the other one was closed. The process operated in stable manner for about two weeks. Then a grade change was conducted and the reactor conditions were changed to reduce the melt index MFR_{21} to 5 g/10 min and to increase the density to 955 kg/m^3. At the same time chunk formation in the gas phase reactor and disturbances in the polymer withdrawal were observed. This caused the bed level and the reactor conditions to oscillate. After some hours the polymer withdrawal was severely restricted and then the continuous outlet was closed and the discontinuous outlet was taken into use. The reactor conditions were thus stabilized after which the second continuously operating outlet was taken into use while keeping the discontinuous outlet functioning so that it operated approximately once in five to ten minutes. In spite of the presence of the chunks in the reactor the process

could be operated in a stable manner for several weeks. The first continuous outlet was opened and cleaned and polymer agglomerates were removed from there.

The undersigned hereby declares that all statements made herein based upon knowledge are true, and that all statements made based upon information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATED: 16.11.07

Klaus Nyfors